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successive biographers, and Grosart, his latest and most enthusiastic admirer, seemed to have told us all we were likely to learn of the man. It was, therefore, with peculiar pleasure that the present writer acquired, from Miss Malvina Lawson, daughter of Wilson's famous engraver, an autograph letter of Wilson's, which was found, on comparison with the documents in Ord's "Life," and in Grosart, to have never been published correctly, or in full. It is that one which, dated Pittsburgh, February 22, 1810, gives an account of Wilson's boat voyage down the Ohio. It is printed verbatim, along with certain letters of George Ord's and Prince Bonaparte's, in the *Penn Monthly* for June, 1879. The writer also received, from the same source, an excellent drawing, never published, of the schoolhouse, near Gray's Ferry, where Wilson taught; and which he would make over to any enterprising publisher who would have it properly engraved.

This slight sketch need not be left without allusion to the "sparrow literature" of the year—a curious mass of raw and not over-nice material, which will, nevertheless, be not without its "final cause," if it contributes to the very desirable settlement of the vexed question of the European sparrow in America.

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HISTORICAL SKETCH OF THE SCIENCE OF BOTANY IN NORTH AMERICA FROM 1840 TO 1858.

BY FREDERICK BRENDEL.

[*Continued from p.* 771, *Vol. XIII, American Naturalist.*]

AT the time when Torrey and Gray commenced their first work on the Flora of our continent north of Mexico, Sir William Jackson Hooker, the celebrated English botanist, had finished his great work on the Flora of British America, two volumes, in quarto, with 238 plates, London, 1833-1840. But, before we proceed farther, we have to review the early history of botany in the most northern and Arctic regions of North America.

Hans Egede, a Danish missionary, was, from 1721 to 1736, in Greenland. After his return to Denmark, he published, in 1741 a description of that country. He describes, vaguely, some plants, with some drawings on one plate, but it is rather difficult to make out what the drawings mean. Afterwards his son, P. Egede, made some botanical collections, which, as well as those of Gieseke, who published a Flora Grœnlandica, 1816, in Brewster's Edinburg Encyclopædia, and those of Wormskiold, are preserved in the herbaria of Hornemann and M. Vahl.

Some Greenland plants were described, 1770, by Rottboell, professor in Copenhagen, and, in the same year a history of Greenland was published by the missionary Cranz; the plants in it were described by Schreber.

The largest collections were made in this century by Jens Vahl, the librarian of the botanical garden in Copenhagen, who traveled nine years in Greenland, and probably there will not many new discoveries be made. J. Lange's catalogue of Greenland plants (in Rink's work on Greenland, 1857), contains 320 species in 52 orders.

A list of plants collected on the coast of Baffin's bay was published by Robert Brown, in 1819, and by the same a "Chloris Melvilleana," 1823, containing 131 species, of which 80 are phenogamous, collected at different times by Sabine, Edwards, Ross, Parry, Fisher and Beverley.

Scoresby's collection in East Greenland, was described by Hooker in 1823, and that of Sabine in 1824.

John Richardson, born in Scotland, 1787 (died 1865), was the naturalist of the expedition from the shores of Hudson's bay to the Polar sea, 1823, under the command of Franklin. This expedition started from York Factory, on Hudson's bay, and proceeded via Cumberland House, Carlton House, Fort Chippeway, on the Athabaska lake, Fort Providence, on the Slave lake, and Fort Enterprise, 65° N. latitude, to the Coppermine river, then along the coast eastward to Cape Turnagain, the Hood river up to Fort Enterprise, to Norway House, on the Winnipeg lake, and back to York Factory. The collection of plants contained 700 species, and was published by Richardson in the botanical appendix to Franklin's Narrative, printed 1823.

The narrative of the discoveries on the north coast of America, by Simpson and Dease, in 1837, published in 1843, contains a catalogue of plants examined by Sir William Hooker, but nothing new; all the species were already collected by Richardson.

Berthold Seemann (born in Hanover, 1825), the naturalist on board of H. M. S. *Herald*, under the command of Captain H. Kellet, during the years 1845-1851, described, in a letter addressed to Sir William Hooker (in Journal of Botany), the arctic Flora of Kotzebue Sound, and published, 1852-1857, the botany of the expedition, the first part of which contains the Flora of Western Esquimaux land.

Bachelot de la Pylaie, a French botanist, explored, in 1819 and

1820, Newfoundland and the little islands of Miquelon and St. Pierre. He published, 1829, Flore de l'isle de Terre Neuve, which was not finished, and contains only a description of cryptogamous plants.

A Flora of Labrador was compiled by E. Meyer, professor of botany in Kœnigsberg, in 1830, from a small collection by the missionary Herzberg, and a number of species made known by Schrank, professor of botany in Munich. These plants were collected by a Danish missionary, Kohlmeister, probably the same that Pursh calls Colmaster in his Flora, and the plants of which he found in the herbaria of Dickson and Banks. The number of all the species of Labrador known at that time, was 198, of which 30 are cryptogamous.

The north-west coast was visited, 1838, by the expedition of H. M. S. *Sulphur*, under the command of Sir Edward Belcher. This expedition explored the Pacific during the years 1836-1842. The botanist was Mr. Barclay, in the service of the Kew garden, assisted by the surgeon Hinds and Dr. Sinclair. The parts visited were Prince William's sound, Port Mulgrave, both under 60° N. L., Sitka, Nutka sound, San Francisco, Sacramento river and Monterey in California. The botanical collections were described by George Bentham, in "Botany of the voyage of H. M. S. *Sulphur*," 1844, with 60 plates.

The U. S. Naval exploring expedition, under the command of Charles Wilkes, which crossed the Pacific during the years 1838 to 1842, in every direction, arrived, 1841, in Oregon. Charles Pickering was collector on this expedition. The Columbia river up to Walla Walla, and the Willamette valley were examined: afterwards the Sacramento river down to San Francisco. In Oregon were collected 1218 species, and 519 in Northern California; the whole collection of this expedition amounting to 9600 species, were examined. The phanerogamous plants were described by Dr. Torrey; the ferns of the expedition, by Dr. Brackenridge; the mosses by Mr. Sullivant; and the lower cryptogams by other botanists.

N. J. Andersson, a Swedish botanist, naturalist of the voyage around the world of the Swedish frigate *Eugenie*, collected in 1852, in California; he took particular notice of the willows, and in 1858, he published in Proceedings of American Academy of Arts and Sciences, a "Synopsis of North American Willows," of which he enumerates fifty-nine species, a number of which he degraded to the rank of sub-species in his Monographia Salicum, 1863. He is the author of the genus Salix in Decandolle's Prodromus.

Besides the Rocky mountains and California, another large field opened for exact exploration. The Mexican war and the acquisition of new territories caused a long series of expeditions to California and those tracts of land which form with West Texas the North Mexican botanical province.

In June, 1842, Lieut. Fremont set out from the mouth of the Kansas river, followed that river about one hundred miles, passed over to the Platte river, traveled up the river to the junction of the north and south fork, where the party divided, one part following the north fork to Fort Laramie, the other proceeding along the south fork to Fort St. Vrain, and from there to Fort Laramie. Then the expedition followed the north fork and the Sweetwater river up to South Pass, and the Wind River mountains, the highest peak of which, afterwards called Fremont's Peak, he ascended. Returning, the Platte river was followed to its mouth. The collection of plants, consisting of 352 species, contained fifteen new ones, described by Torrey.

The collections of Fremont's second expedition, during the years 1843 and 1844, which extended to Oregon and California, were greatly damaged, so that in many instances it was extremely difficult to determine the plants. Torrey furnished the description of a few new genera and species, which, with four plates, was published in App. C. to Fremont's Report. One of these new genera he named Fremontia, but this name was afterwards withdrawn, as Nees had already described the plant under the name Sarcobatus, and Fremont's name was transferred to another new Californian genus of the order of Sterculiaceæ.

Two other expeditions were undertaken by Fremont in 1845-1846 and 1848, extending to California. Large collections were made again, but the greater part of them were destroyed by the same mishaps. Some of the new genera that were saved for examination were described and published in 1850, by Professor Torrey in the Smithsonion Contributions, as "Plantæ Fremontianæ," with ten beautiful plates.

Emory's military expedition traversed in June and July, 1846, the plains from Fort Leavenworth to the bend of the Arkansas, followed this river to the Pawnee fork, crossed the Raton mountains (7000 feet) and the ridge between the Canadian river and Rio Grande to Santa Fé; then again the dividing ridge (6000 feet) between the Rio Grande and Gila, followed the latter to the Colorado of the West, and arrived at St. Diego. The botanical collections (about 200 species) were examined by Torrey, the Cactaceæ by Dr. Engelmann, and published in Appendix 2 of Emory's Report. A small number of plants was collected by Lieut. Abert, amongst which was nothing new.

Dr. A. Wislizenus, born in Germany, 1810, left St. Louis in the spring of 1846, with the intention of traveling in North Mexico and Upper California. He undertook the journey at his own expense, and war was not yet declared, when he arrived at Chihuahua; but there he was arrested as a spy, and transported to Cosihuirachi, at which place he was left in a "passive" condition; that means as to his free will to leave; for, as a collector, he was very active on this rich field, where he collected so many species not found before. Six months afterwards, Colonel Doniphan's troops occupied that part of the country, and Wislizenus accepted a situation in the medical department of the American army, and, instead of going westward as he first intended, he followed the army to Monterey, and returned via Matamoras to the States. He collected a large number of plants. In an Appendix to the "Memoir of a tour to North Mexico in 1846 and 1847, by A. Wislizenus, M. D., printed for the use of the Senate of U. S.," the botany of the explored country is described by Dr. Engelmann. Amongst the new species were over thirty new species of Cactus.

West Texas was extensively explored since 1835, when Ferdinand Lindheimer (born in Germany, 1802), settled at New Braunfels, where he lives yet. His large collections were named and described by Gray and Engelmann, in Boston Journal of Natural History, as Plantæ Lindheimerianæ, part I in 1845, part II in 1847. Many of these plants were shortly afterwards described by Scheele, in Linnæa, from a collection brought to Germany by the geologist F. Roemer, who studied the geology of Texas in 1846-1847, and received many specimens from Lindheimer.

Completed and extended to the whole area of the Rio Grande, were these explorations by Gregg and Wright.

Josiah Gregg, the author of the "Commerce of the Prairies, 1844," made large botanical collections, but died soon (1849) in California.

Charles Wright spent several years in Texas, the botany of which country he studied. Then, in 1849, he went westward to El Paso, in New Mexico. His rich collections of plants were placed in the hands of Prof. Gray, who described and published "Plantæ Wrightianæ" in the third volume of Smithsonian Contributions, with ten plates. In 1851–1852, he was again in New Mexico, the collection of which tour furnished the material to the second part of Plantæ Wrightianæ, with four plates, in the fifth volume of the Smithsonian Contributions.

Another well-known botanist explored New Mexico at the same time. August Fendler came, about the year 1836, from Germany to North America. In 1846 he left Fort Leavenworth with a military train, followed the Arkansas river up to Fort Bent, crossed the mountains to Santa Fé, where he made his principal collections from April to August, 1847. An account of his collection Prof. Gray published in the Memoirs of the American Academy, Vol. IV, under the title, Plantæ Fendlerianæ. Fendler resided a long time near St. Louis; went afterwards to Venezuela, and is now collecting on the Island of Trinidad.

Dr. Woodhouse was a member of the expedition down the Zuñi and Colorado rivers under the command of Capt. Sitgreaves, in 1850. His collections, placed for examination in the hands of Prof. Torrey, consist of three portions: the first, collected between Neosho and Arkansas rivers, and on the north fork of the Canadian, and the second, from Texas, contain nothing new. The plants of the third portion were collected in Arizona and California. The catalogue of the latter (about 180 species) is published with twenty-one plates, in 1853, with Sitgreaves' Report. There is described a new genus of the order of Amarantaceæ and several new species.

In the year 1852 an expedition under the command of Capt. Marcy explored the Red river to its sources. The botanical collection of 200 species, made by Dr. Shumard, was examined by Prof. Torrey. and published in App. G of Marcy's Report with twenty plates.

The botany of these formerly Mexican provinces was nearly unknown before Berlandier; but by the collections of the above-named botanists much light was thrown upon it; their work was further advanced by the Pacific railroad explorations and the Mexican boundary survey, and will be completed by the surveys of the

Territories in progress yet. Here may be mentioned, though not in the compass of this historical sketch, the surveys of Hayden, Powell, Wheeler, and King, who surveyed the State of Nevada, and whose report contains, in the fifth volume, the botany of Nevada and Utah, by Sereno Watson.

Several expeditions were ordered by the Government, in 1853, to cross the Rocky mountains to the Pacific, along certain parallels, to explore the most practical route for a railroad to the Pacific coast. The parties consisted of a military command and a number of technic and scientific assistants. The reports of these explorers were afterwards published by the Government in thirteen quarto volumes, extensively illustrated and full of the most important scientific matter. The botanical collectors were the following: Dr. Suckley, naturalist to the party of Gov. Stevens, who proceeded between the parallels 47 and 49 to Oregon. The botanical report of this route, with six plates, we find in the last volume; it contains the collections of Suckley on the plains, 323 species, examined by Prof. Gray (one genus and three species were new), and a catalogue of plants from Washington territory collected by Dr. Cooper. Those east of the Cascade range, 75 species, of which two were new, were examined by Prof. Gray, those of the west side, 386 species, of which one was new, collected by Suckley and Gibbs, were examined by Torrey and Gray. A general report on the botany of the route is written by Dr. Cooper.

In Vol. II, Torrey and Gray reported on the collection of plants made by F. Creutzfeldt, a German gardener from St. Louis, who was engaged as botanist under the command of Capt. Gunnison, and was killed with the same, by the Indians, near Sevier lake, Utah. He collected 124 species, with two new ones; the report is illustrated by three plates. After the murder of Gunnison, the party reached, under Lieut. Beckwith, the Great Salt lake, where the winter was passed. J. A. Snyder, the topographer of the party, took charge of the botanical collections made along the 41st parallel, from the Great Salt lake to the Sacramento river. The plants, 59 species, were published by Torrey and Gray. There were seven new species, illustrated on seven plates.

The richest collection was that of Dr. J. M. Bigelow, under Capt. Whipple, along the 35th parallel; it is published in Vol. IV, and contains 1109 species of vascular plants, amongst which nine genera and seventy-two species were new, illustrated by twenty-five plates. In a separate report Dr. Engelmann described fifty Cactaceæ, of which eighteen were new and illustrated by twenty-four plates, and Sullivant seventy-two mosses, with twelve new ones and ten plates. Very instructive is the general description of the soil, of the productions along the route, and the forest trees by Bigelow.

The route near the 32d parallel, from El Paso to Preston on the Red river, was explored by Capt. Pope. Dr. Diffendorfer made the botanical collections, which contained 268 species, of which three genera and thirteen species were new. The catalogue is published by Torrey and Gray in Vol. II of the Reports, with ten plates.

Dr. A. L. Heermann was the naturalist under the command of Lieut. Williamson, who explored the passes in the Sierra Nevada and the coast range. The catalogue of eighty-eight species, amongst which were fourteen new ones, with eighteen plates, described by Durand and Hilgard, we find in Vol. V, with a separate collection of the geologist, W. P. Blake, containing eighty-seven species, with six new ones and ten plates, described by Dr. Torrey.

Vol. VI contains the interesting botanical report of Dr. J. S. Newberry, geologist under the command of Lieut. Williamson when he explored the country between the Columbia river and Sacramento river. Besides an article on geographical botany, he described the forest trees with ten plates, and added a catalogue of 531 vascular plants (two genera and eight species were new) with six plates, twenty mosses and ten lichens. He was afterwards a member of the expedition on the Colorado of the West, under the command of Lieut. Ives, in 1857–1858. The report was published in 1861, and part 4 contains the catalogue of plants examined by Gray, Torrey, Engelmann and Thurber, 400 species with ten new ones.

Dr. Thomas Antisell collected, under the command of Lieut. J. G. Parke, between the Rio Grande and Southern California, 281 species (one genus and three species were new), which are published with eight plates in Vol. VII of the reports.

The Mexican boundary survey began in 1849, and continued with an interruption, and after a reorganization under Major Emory in 1853, till 1856. The report of Emory was published, 1858, in two large volumes; the first half of the second volume contains the botany. An introductory chapter on geographical distribution and botanical features of the country was written by Dr. C. C. Parry, the catalogue of plants, with descriptions of twelve new genera and 195 new species, with illustrations on sixty-one plates, by Torrey, partly by Gray and Engelmann, who elaborated the Cactaceæ separately and described ninety-two species, of which not less than forty were new, with seventy-five plates. The whole work contains under 2140 species, 235 new ones. The most new species, besides the Cactaceæ, we find amongst the Euphorbiaceæ (36), described by Engelmann, then under the Compositæ (32), and the Scrophulariaceæ (19), both orders described by Prof. Gray. Eight orders comprise half the species of the collection: Compositæ 430, Leguminosæ 212, Euphorbiaceæ 101, Cactaceæ 92, Scrophulariaceæ 71, Cyperaceæ 61, Labiatæ 53 and Cruciferæ 47. The large order of Gramineæ, elaborated by Dr. George Thurber, was unfortunately omitted on account of the already too great size of the volume. Geo. Thurber was one of the botanists of the survey under Bartlett at the same time with Dr. J. M. Bigelow. Gray published already, in 1854, in Memoirs of the American Academy of Arts and Sciences, N. S. Vol. v, "Plantæ novæ Thurberianæ," twenty-eight species, of which six belong to six new genera. Charles Wright was attached by Col. Graham to his separate corps of the survey. Under Emory, Dr. C. C. Parry and A. Schott made the botanical collections.

The important result of all these explorations was not only the multitude of new genera and species made known, but the light thrown upon the distribution of North American plants. It was recognized that there is an unmistakable difference between the eastern wooded, the central treeless and the Californian sections of temperate North America, of which the first may be called the sylvan, the second, the campestrian, and the third, the Californian botanical province. The campestrian province reaches from West Texas to Southern California, and far north on both sides of the Rocky mountains; the Sierra Nevada and Cascade range, in Oregon, form the western border, but on the east side there is no sharp line, the prairies stretching into the wooded country. That the flora of East Texas is identical with that of Louisiana and the other Gulf States, Engelmann has sufficiently demonstrated in the Proceedings of the American Association, fifth meeting, 1851.

At the time of Fremont's first expedition, two German botanists directed their lonely ways to the Rocky mountains and to the Territory of Oregon.

Carl Geyer, born 1809, came to America in 1835. As already mentioned he was employed as a collector by Nicollet, afterwards he crossed the Rocky mountains under 40° N. L. to Oregon territory. His rich collections were sent to Sir William Hooker, who examined the plants and described fourteen new species in *Journal of Botany*, 1845 to 1856. Geyer himself furnished interesting remarks on the features of the country. He returned in 1845 to Germany, and died there in 1853.

Lueders, from Hamburg, crossed the Rocky mountains in 1843, and made collections in Oregon Territory. Fremont met him near the Cascades of the Columbia river, where he (Lueders) lost his package by capsizing of his canoe in the rapids, an accident which Fremont memorized by naming a little bay in that locality after his name Lueders' bay, probably a poor reparation for his loss. Nothing was known of him afterward.

Descriptions of plants collected by Dr. Wm. Gambel in the Rocky mountains and California were published by Thomas Nuttall in the Proceedings of the Academy of Natural Sciences of Philadelphia, in 1848. He proposed twelve new genera and 106 new species, but not all of these remained valid.

Captain Stansbury explored, 1849–1850, the valley of the Great Salt lake. His report was published by the Government in 1852. Appendix D contains the botany examined by Torrey, 114 species, of which three were new and some new varieties, with nine plates.

The knowledge of the botany of British America was greatly promoted by Sir John Richardson's Arctic searching expedition, published in two volumes, London, 1851. The object of the expedition was the search for the lost Captain Franklin along the north coast. The voyage was made in boats from Lake Superior via Lake Winnipeg to the Mackenzie river, then from Great Bear lake to the Coppermine river, and lasted from May, 1848, to Sept. 1849. In the Appendix (more than half the second volume) we find chapters on the physical geography, climatology and geographical distribution of plants north of the 49th parallel, with most valuable observations. There is a list of trees and shrubs with their northern limits, and a table of the distribution of Carices, which was prepared by Dr. Francis Boott, one of the best authorities and author of the beautiful "Illustrations of the genus Carex," the 4th part of which was after his death published by J. D. Hooker. Boott was born in Boston, 1792, and died in London, 1863.

In the summer of 1848, Prof. Agassiz made a scientific excursion to the Lake Superior with a number of students. He published, 1850, a volume on the physical character, vegetation and animals. Two chapters treat of the botany on the shore of Lake Superior compared with that of the Jura and the Alps. The accounts of such excursions are highly interesting, when related by competent botanists, *e. g.*, that published by Prof. Gray in 1841, in *Silliman's Journal,* "Notes of a Botanical Excursion to the Mountains of North Carolina."

The most prominent American botanists of our times are Torrey, Gray and Engelmann.

John Torrey was born in New York, 1798, and died on the 10th of March, 1873. Author of many botanical writings, he published, as early as 1819, a "Catalogue of plants growing spontaneously within thirty miles of the city of New York;" in 1824 a "Flora of the northern and middle sections of U. S.," of which only Vol. I was printed, containing Classes I-XII of the Linnæan system, which was at that time yet in general use; 1826, a "Compendium of the Flora of the Northern and Middle States;" 1836, a "Monograph of the North American Cyperaceæ" (in Annals of the Lyceum of New York, Vol. III); from 1838 to 1843, with Asa Gray, the first two volumes of the Flora of North America already mentioned. It contains the orders from Ranunculaceæ to Compositæ, and was not continued at that time, but will be finished now, since the large amount of new material brought from the Western explorations is nearly worked up. In 1843 appeared his "Flora of the State of New York," two large quarto volumes, with 162 tables, forming the second part of the Natural History of New York. In the preface we find a historical sketch of the botanists and their work in the State before that time. His other writings are already mentioned.

Asa Gray was born on the 18th of November, 1810, in Paris, Oneida county, New York, and is now Professor of Botany of

Harvard University, at Cambridge, Mass. His first work was published 1834-1835, " North American Gramineæ and Cyperaceæ," two volumes, containing each one hundred species, illustrated by dried specimens. It was followed by " Elements of Botany," 1836; " Melanthacearum Americæ septentrionalis revisio," 1837; the "Botanical Textbook," 1842 (third edition, 1850); "Chloris Americana," illustrations of new, rare and otherwise interesting North American plants. Decade I, with ten beautiful plates, 1846 (not continued). The first edition of his well-known " Manual of the Botany of the Northern States," appeared in 1848, and was followed by many editions. " Genera Floræ Americæ boreali-orientalis illustrata, Vol. I and II, with 186 tables," from Ranunculaceæ to Terebinthaceæ, was not continued. Already mentioned are many of his contributions in public documents, Smithsonian publications and scientific periodicals, too numerous to be all named, but all of the greatest value.

George Engelmann, born in 1810, in Frankfurt-on-the-Main, came to America about the year 1834, and has resided since that time in St. Louis, Missouri. Except his writings mentioned above, he has published, in different periodicals, a number of monographs of difficult orders and genera, *e. g.*, Cactaceæ, 1856, Cuscutæ, 1859. His papers on North American Juncus, Quercus, Yucca, some Coniferæ and Gentianæ are later.

Other active botanists of that period are A. Wood, who published a " Classbook of Botany," which is much in use. There is a " Botany of the Northern States," by L. C. Beck, professor in Albany, who lived from 1798 to 1853; a " North American Botany," by Eaton and Wright; an " Introduction to Botany," by Comstock; an "American Flora," by Strong; a " Botany of the Southern States," by Darby.

Local floras and catalogues of plants were compiled, by Dewey: Report on the Herbaceous Plants of Massachusetts, 1840; by Emerson: Report on the Trees and Shrubs of Massachusetts, with seventeen plates, 1846; by Lapham: Plants of Wisconsin, 1849, and a Catalogue of Plants of Illinois, published in the second volume of Trans. of Ill. State Agric. Soc., 1857. Catalogues and notes on the botany of this State were published previously, 1826, by Dr. L. C. Beck, and, 1843, by C. Geyer, with notes by Dr. Engelmann, both in *Silliman's Journal*, then 1845, by Dr. C. W. Short in the *Western Journal of Medicine*. Much has been done for the knowledge of the botany of Illinois by Dr. S. B. Mead, of Augusta, Hancock county, and Dr. G. Vasey, of McHenry county.

Amongst the American botanists, although born in Germany, may be named Dr. Rugel. He came, in 1842, to America, and settled afterwards in East Tennessee, where he lately died. He collected in the South-eastern States, and used to send his collections to Shuttleworth, in Geneva (Switzerland).

There is a number of catalogues which fall partly in the latter time of the second period, that of Bachman, of the plants in the vicinity of Charleston, S. C., 1834; by Gibbes, of the plants of Columbia, S. C., 1835; by Aiken, of the plants near Baltimore, 1836; by Lea, of plants collected in the vicinity of Cincinnati, after his death published by Sullivant. The fungi of the collection were examined by Berkeley.

Ravenel published a paper on the plants of the Santee canal, 1850, and Kirtland one on the climate, flora and fauna of the southern shore of Lake Erie, 1852.

Publications on single orders exist of Jos. Barratt, "Salices Americanæ" and "North American Carices," 1840; of Tuckerman, "North American Lichens," 1848; of Sullivant, "Musci Alleghaniensis," 1846, and "Bryology and Hepatology of North America," 1847; of Bailey, on "North American Algæ." 1848; of Curtis, on "North American Fungi," 1848, both in *Silliman's Journal;* of Dewey, "North American Carices," in *Silliman's Journal;* of Sartwell, "Carices Americæ septentrionalis exsiccatæ," 1848–1850 (158 species); of Alex. Braun (professor in Berlin, who died lately), "Equisetæ and Charæ," in *Silliman's Journal;* of Harvey (professor in Dublin, dead since 1866), "The Marine Algæ of North America," in Smithsonian Contributions, 1858, three volumes, with fifty plates.

The chief authority on North American fossil plants is Leo Lesquereux, a native of Switzerland, residing in Columbus, Ohio, who is besides a trustworthy judge of mosses, and compiled the catalogue of Arkansas plants in Owen's Geological Report. An important branch of science, the geographical distribution of American plants, is yet in its infancy. It requires a thorough knowledge of local floras in connection with the physical and climatological condition of each locality to get the right view of this matter. Some steps have been made in that direction, some preparatory work has been done, but the main labor is left to the future. Prof. Gray published "Statistics of the Flora of the Northern U. S.," in *American Journal of Science and Arts*, 1856, which will promote the cause for that part of the country. Dr. J. G. Cooper published a good article on the distribution of the forests and trees of North America, in Smithsonian Report for 1858. As only the woody plants are here accounted for, the limits drawn cannot be intended as to separate botanical districts in general. Even for the forest plants the limitations admit of some corrections, but as a preliminary essay it is valuable.[1]

Here this sketch must be concluded, for two reasons—1, the newest botanical literature is so extensive, and partly published in so many different periodicals, that a private library is not sufficient for a survey of the whole; 2, the number of botanists has increased so much throughout the country, as is shown by Cassino's Naturalist's Directory, that it is rather difficult to winnow the chaff from the wheat, and to avoid offence by neglecting a man whose merits are worthy of mention.

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EDITORS' TABLE.

EDITORS: A. S. PACKARD, JR., AND E. D. COPE.

—— The Academy of Natural Sciences of Philadelphia, nearly four years since, made a number of changes in its organization as expressed in its by-laws. With but two dissenting voices, the academy concluded to place the direction of the museum, and the scientific work dependent on it, in the hands of thirteen professors, who were to perform the work previously entrusted to four curators. Experience had abundantly shown, what is indeed self-evident, that a general scientific museum cannot be obtained, arranged or controlled by four persons, however gifted; and further, in the history of the institution it had generally been the case that the four curators were not all selected from the original investigators or active scientists of the academy. It was thought

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[1] Although published in 1860, yet, as the author has mentioned several works published later than 1850, we may here draw attention to the Flora of the Southern United States, containing abridged descriptions of the Flowering Plants and Ferns of Tennessee, North and South Carolina, Georgia, Alabama, Mississippi and Florida, by A. W. Chapman, M. D. The Ferns, by Daniel C. Eaton, New York, 1860. pp. 621.—EDITORS.